

ARTIFICIAL NEURAL FUZZY INFERENCE IN TASK-BASED LEARNING SUPPORT SYSTEM FOR DISTANCE EDUCATION



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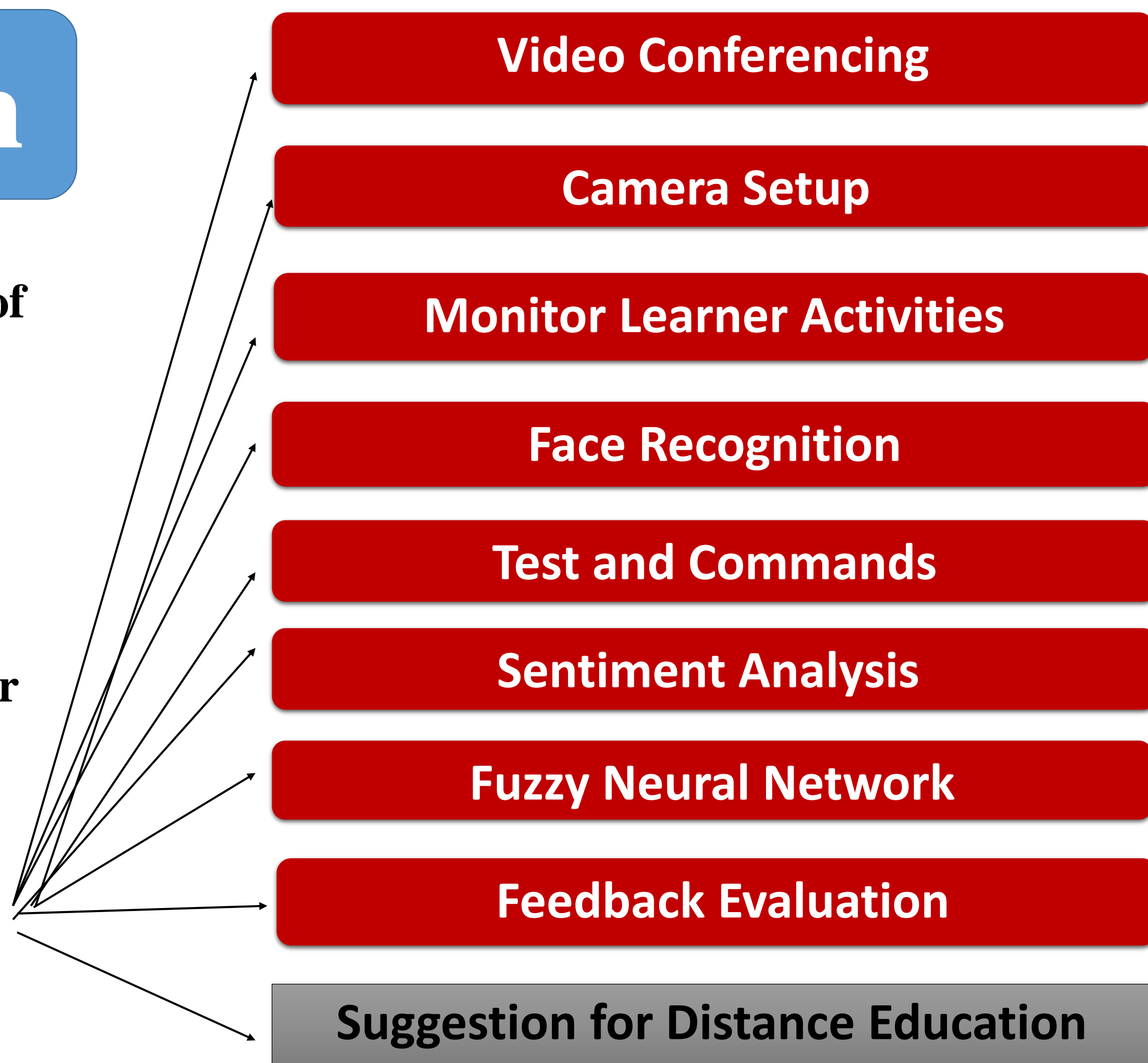
Introduction

Distance education learning systems have become one of the major investigation areas nowadays because the various categories of graduate learning are studied exclusively through the distance learning system. It provides the desired knowledge in various applications under the same domain or category in a well-organized manner. But the distance education learning system also has some major issues. In order to solve the problem of the distance education learning system, in this paper we present a novel sentiment analysis-based learning algorithm to learn the result of each learner in earlier classes and the level of each learner. The proposed sentiments analysis-based Fuzzy Neural Network learning methods analyze the results of previous classes' positive and negative comments specified by the learner and the task result of the learner. Initially, to convey the message or information about the individual learner, the system is connected to the videoconferencing, and then the camera is connected to avoid delay problems during the conversation. To increase the teacher closeness and social occurrence, it proposes a learning method to review the comments of the previous classes and perform some of the tasks, such as taking tests on 10 min from previous classes and make a review on that the task based on the sentiment analysis mining methods to develop the learning participation, training efficiency, and value of communication in the distance education learning system. After the learning results are found from each one of the students in the class, they are sent to the teacher. The instructors and learners are exactly identified based on the face and speech recognition performed using the automation recognition system

Proposed Architecture Representation

This study mainly focuses on the international education system learning based on the creation of the technological components-based communication between the instructor and the learner. Initially, to convey the message or information about the individual learner, the system is connected to the videoconferencing, and then the camera is connected to avoid delay problems during the conversation.

The exact identification of the learner face and speech recognition are performed based on the automation recognition system. Once the faces are recognized to match the exact user, the user then takes a test and a small quiz from previous class learning to analyse the level of each learner in the previous class. Then, based on the question and the answer, the data are pre-processed using the pre-processing step and the learned pre-processing result using the Fuzzy Neural Network learning to improve the distance education class results in the undergraduate level of the classes for anyone in the course. The entire representation of the system is found in Figure.1.



Experimentation Result

As shown in Table 1, the rating for the learners for each communication system is represented in terms of the helpfulness designed for their learning and the clearness of demonstrating their learning. The learning results of each learner are represented in the form of the following categories: class meetings, group learning, and individual learning. The results show that the proposed learning system has high helpfulness and clearness.

Students and Instructors Perceived Learning Helpfulness and Clearness of the System

Learning	Students				Instructors			
	Existing (H)		SM-FNN(C)		Existing (H)		SM-FNN (C)	
Individual	3.88	3.9	3.8	3.9	4.5	4.6	3.8	3.9
Group	3.94	3.99	3.8	3.85	4.2	4.31	3.53	3.64
In class	3.98	4.18	4.2	4.35	4.2	4.35	4.15	4.35

Results from respondents' ratings under the graduate and undergraduate distance education learning system are shown in Table 2. The instructors had more positive attitudes toward the system than students for each of the categories.

Students' and Instructors' Perceived Comfort with the System

Items	Students	Instructors
Feel at ease with tech	4.1	4.58
Equal incorporation	4.3	4.90
Feel comfortable view learning	4.25	4.85
Feel comfortable seeing students	3.98	4.97
Use the system to evaluate learning process	3.98	4.97
Use the system to evaluate learning outcome	3.98	4.99

Conclusion and Future Work

This study proposes an integrated system approach for integrating the efficient distance education learning methods based on the usage of the data mining method to mine the sentiments of positive and negative comments of each learner, as well as the quiz results of the learner. The proposed methods use a data mining task to preprocess the question and answer data for sentiment analysis, i.e., whether or not the learner is flexible to take classes, and then make a suggestion for the next class using the FNN algorithm. The results show, that the proposed SM-FNN increases the result of the distance education learning system and training efficiency and enhances the interaction between the learner and the instructor, which they also recognized using the face and speech-based recognition tool. The results demonstrate that the proposed system provides more suggestions to improve the distance education learning system through supporting telecommunication technology with camera and video conferencing. In order to improve the learning results of each learner in the distance education learning system in the present work, the proposed work is extended to integrate more personal devices in an alternative manner